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# Rice from Africa for Africa

## Duxton Asset Management and its Investment in Tanzanian Rice Farming

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*"We have abundant land, a long-standing tradition of growing rice, and with just 3% of Africa's water resources currently being used, plenty of water."*

Dr Aliou Diagne, AfricaRice

Desmond (Des) Sheehy, co-founder and CIO of Duxton Asset Management, sat back and thought about the phone call he had just had with one of his key investors. There had been a setback. The discussions over an imminent investment in a sustainable rice farm in Tanzania had taken an unexpected turn. Their key investor would not be making the investment of $12.46 million, or 97% of the $12.84 million that had been agreed upon.

Duxton Asset Management was located in a beautifully converted shop house in the Duxton Hill neighbourhood of Singapore, thousands of miles from Ruaha River valley in Mbeya, south-western Tanzania, where the farm stood. It was May 2012, more than a year after the deal had first come to the team's attention.

Des thought of the endless discussions, memos, due diligence and research work done by his investment team – John Simpson and Alex Lepori – who had travelled the 5,000 miles from Singapore to Tanzania many times that year. Duxton's strict due diligence standards had made the process particularly trying. The sellers, too, had spent considerable time, effort and funds on the process. Des had been excited about adding the farm to Duxton's portfolio. The project had sound financial potential and the team was confident of their unique ability to manage the risks in this investment. Now, however, they needed to make some quick decisions.

# Background and History of Duxton AM

Having graduated in engineering from University College, Cork, Ireland, Des Sheehy had spent nine years working on large infrastructure projects in Europe and Asia before getting an MBA from INSEAD and joining the International Finance Corporation. As senior investment officer he was responsible for the origination, execution and supervision of investments throughout Asia.

Des had been at the IFC for more than six years when he met Ed Peter from Deutsche Bank in Singapore. Ed ran Deutsche Bank's asset management business in Asia Pacific, Middle East and North Africa. He asked Des to build an illiquid asset portfolio, which included farmland and other agricultural investments. Des started this work in 2005. By 2009, he was a managing director heading "Complex Asset Investments" within the bank's asset management division.

When an opportunity presented itself in 2009, Des and Ed along with their team (Exhibit 17.1), including Stephen Duerden (CFO) and Chong Kuan Yew (head of investments) spun off the portfolio into an independent business and co-founded Duxton Asset Management, a Singapore-based MAS-registered asset manager.[1] Deutsche Bank continued to maintain a 19.9% stake in this business.

1. A fund or asset manager regulated by the Monetary Authority of Singapore under the Securities and Futures Act.

Duxton was appointed by Deutsche Bank as the delegated fund manager for DWS Vietnam and DWS GALOF funds,[2] and a $40 million portfolio of wine funds. Over the next few years, Duxton's mandate expanded and it added new funds:

- In 2010, Duxton started DALT (Duxton Agricultural Land Trust), a hybrid mutual open-end fund with bi-annual redemption.
- In the same year, Duxton won a €150 million segregated institutional mandate from a large pension fund in Europe. Duxton was to manage a non-discretionary mandate by investing in agricultural production related assets.
- In 2011, Duxton launched two new funds: DALF (Duxton Agricultural Land Fund), and DACE (Duxton Agricultural Commodities and Equities Fund). DALF, a Cayman closed fund, would invest in a global portfolio of agricultural farmland, and DACE, a daily liquidity fund, would invest in global agricultural related securities.

In 2012 Deutsche Bank decided to restructure its asset management business and sold its minority stake in Duxton to the team.

# Duxton's Investment Philosophy

By 2011 Duxton's investment philosophy had evolved considerably. The focus was on building a diversified portfolio of private equity investments with minimum leverage. It employed two broad investment styles –

- Management Buy Out/Buy In: Duxton would identify a good management team and help it acquire the asset where it worked, or other assets. Duxton would have a controlling interest for providing the capital, incentivizing management through co-investments and an equity participation programme.
- Permission investing: Duxton would identify projects to execute with partners that would provide the bulk of the capital while it would contribute a combination of both capital and its expertise in growing businesses. In such structures, Duxton would be a minority investor with strong influence.

By 2012 Duxton had invested in farmland on four continents and across a variety of produce including cereals, dairy and meat. The team believed that a well-diversified portfolio would have lower downside risk and be able to withstand the variability in agriculture.

With holdings across continents, Duxton began to delineate its approach between developed and frontier markets, recognizing that optimal farming methods had to reflect the underlying market dynamics and could not be blindly replicated across geographies:

- Developed market investments benefited from consolidation and scale, whereas farms in developing markets with historical smallholder[3] farming practices could not be consolidated easily. In developing markets it made economic sense for investments to vertically integrate through the value chain, covering not just primary production but also processing.

2. DWS Vietnam Fund was started in 2006, a closed-end fund that invested in listed Vietnamese securities and unlisted Vietnamese assets. DWS GALOF Fund (DWS Global Agricultural Land and Opportunities Fund) was launched in 2007, a closed-end fund with a mandate to invest in unlisted agricultural assets.
3. Marginal and sub-marginal farm households that own or/and cultivate less than 2 hectares of land.

- Developed country farming practices were capital-intensive with sparse populations and large holdings. Developing markets were labour-intensive. They required a longer term approach of building trust-based relationships and collaborative working practices with neighbouring communities.
- Finally, while direct agricultural investments had high environmental, social and governance risks in both markets, in developing markets the issues would often be more sensitive from a political and social standpoint. Conversely, the ability to positively impact a developing country was higher.

Overall, even though frontier or developing market deals could be smaller in scale, the potential returns from these markets were expected to be much higher. Duxton actively pursued frontier market deals for their portfolio.

## Benefits and Risks of Farmland Investments

Farmland investments[4] are highly specialized, with unique features vis-à-vis other investments. Between 1926 and 2009, farm real estate had a high average annualized return of 10.3%, second only to small cap equities. It also had a low standard deviation of 8.3%, making its volatility profile far lower than that of equities and even long-term corporate or government bonds.

The notion of low volatility may seem counterintuitive, as agricultural commodity markets are known to be cyclical and volatile. However, the smoothness in farmland returns derives from the rent earned on the land, a common source of returns to the landowner and a hedge against the cyclical nature of its produce markets.

Farmland investments also provide the benefit of diversification. Between 1997 and 2011 these investments had a low correlation to most major asset classes and a slight negative correlation to the US bond index. Farmland investments also have hedging properties, generally keeping pace with inflation.

Additionally, with growing concerns about world food security, farmland investments were expected to provide attractive financial returns as land became scarce and produce more valuable in the face of strong demand. Capital invested in this sector would help improve efficiency by spreading best farming practices globally, and improving world food security in the process (see Exhibit 17.2).

Agribusiness, in particular farmland investments, face a number of risks, including liquidity risks, macro risks, currency risks, business and operational risks, and ESG risks.

- Farmland investments are illiquid. Transactions require long lead times. This makes these investments suitable only for portfolios that can take longer time horizons.
- Farmland investments carry numerous macro risks, such as the risk of political turmoil, price controls and trade restrictions. In the case of farmland investments in frontier locations, these can be even more significant as the value of farmland is directly linked to political turmoil in a country.

4. Investors can gain exposure to the agriculture industry through soft commodities, listed equities, or farmland. The most common way is through commodity futures and over-the-counter (OTC) derivatives, followed by listed companies (usually processing, logistics, and fertilizer companies). In contrast, Duxton invests directly in farming enterprises.

- With most agricultural commodities priced in USD, most farmland investment tends to be implicitly long, which provides a hedge in countries with a depreciating currency while creating margin pressure in a currency appreciation setting.
- Any farmland investment carries all the other risks of an operational business such as adverse market conditions and poor farm or financial management. Yields can vary significantly depending on weather, the management and operational effectiveness of the asset. As an example, in Kapunga during the 2011/12 season the lowest yield was 2.6 MT/ha and the highest was 8.2 MT/ha. Due to this high performance variability and the inherent operational leverage, Duxton preferred to have low financial leverage on farmland assets.
- Finally, farmland investments touch on a spectrum of ESG (environmental, social and governance) concerns. Common problems include land-grabbing from smallholders, hostility to foreign ownership of farmland or to the export of a food crop. Any displacement of a community or people due to a farm's activities can create hostility, as can the perception that a farm is using more than its fair share of resources. Farmlands can spark environmental concerns about water usage and management, encroachment on national parks, pollution through farm activities, and displacement of natural resources.

Farmland investments were estimated to be between 0.5% and 3% of large institutional investors' invested AUM.[5] A separate study commissioned by OECD[6] indicated that farmland investments by private investment funds were highest in Australia/New Zealand, followed by South America, North America, Europe and Africa.

## Duxton and Socially Responsible Investing (SRI)

Socially responsible investing (SRI) had gained momentum since the 1990s along with greater public awareness of global issues. By 2010, more than US$3 trillion of professionally managed assets in the US used SRI strategies. In Europe, such assets had grown 87% from €2.7 trillion in 2007 to €5 trillion in 2009. By 2012, SRI had become an important aspect for almost all institutional investors.

In the early days, funds implemented SRI through the use of "exclusion" screens, which were used by investors to screen out assets tied to alcohol or tobacco, or companies that had been sued or convicted of environmental damage. Over time, funds added "inclusion" screens to add exposure to companies with desirable ESG practices. Exclusion and inclusion screens continue to be the most common approach to managing responsible investments.

Screening (exclusion or inclusion) is a passive form of SRI. More active SRI can take the form of shareholder activism, and community or social investments where social outcomes are expected with or without a financial return. One specific sub-category –

5. June 2012 estimate by Grain.org/Publications.
6. HighQuest Partners, United States (2010), "Private Financial Sector Investment in Farmland and Agricultural Infrastructure", OECD Food, Agriculture and Fisheries Papers, No. 33, OECD Publishing http://dx.doi.org/10.1787/5km7nzpjlr8v-en.

impact investing[7] – refers to an investment that has an explicit and measurable agenda for positive impact over and above financial returns. Impact investing can be fairly hands-on as it resembles traditional venture funding, with typically a substantial degree of influence for the investor.

Duxton took ESG seriously but did not call itself an impact investor. Unlike an impact investor it did not set any explicit non-financial impact objectives. Duxton chose to engage with such issues responsibly and head-on rather than avoiding or underplaying their importance. As such, Duxton would be viewed as a 'responsible investor'.

> *Our experience suggests that in developed countries with transparent pricing we can identify good production-only assets. In the emerging markets, however, this can be more difficult. As a result we have begun to assess assets with some value-add that also play a big role in the local community. This can help us to leverage smallholder production and mitigate political risk, as well as adding significant value to an investment*. (Des Sheehy)

# Africa as an Investment Destination

Historically, most of the funding Africa received was tied to a developmental agenda. Foreign investors perceived Africa to be "high maintenance" rather than an attractive destination for financial investments, in contrast to Asia's success in attracting foreign funds.

In the 1990s, as many African nations emerged from war and conflict, some such as Nigeria started privatization campaigns. At the same time, growth in emerging economies and the resulting boom in demand for resources started working in Africa's favour. The continent is immensely resource rich, with substantial oil reserves, 40% of the world's gold, and 80-90% of the world's chromium and platinum reserves.[8]

In a second fundamental shift, Africa's trading patterns benefited from the emerging South-South trade. Between 1990 and 2008, Europe's share of Africa's trade fell from 51% to 28%, while inter-Africa trade increased from 14% to 28%. In addition, new partnerships were forged with Asia and Latin America through bilateral arrangements with China, India, Brazil and countries in the Middle East.

These shifts in turn created socio-economic momentum, in the form of urbanization, an expanding labour force, and a growing middle class.

- The percentage of Africans living in urban areas increased from 28% in 1990 to 40% in 2008, and was expected to reach 50% by 2030. Urbanization is a main driver of productivity, aggregating demand and supplying labour to an expanding economy.
- Africa has a young population, with 500 million working-age Africans contributing to its economy. It is expected to have 1.2 billion working-age people by 2050; one in every four workers in the world will be from Africa, one in eight from China.

7. Other forms of impact financing have evolved in recent years. Social investment or impact bonds (SIBs) started around 2010, promising to provide investors a return if the social objectives of the underlying investment are met. Soon after, investors started providing unfunded guarantees to investee companies to help them obtain banking facilities. Most recently, crowd funding has become a popular way of investing in ventures that have more than just a profit motive.
8. McKinsey Quarterly, June 2010, "What is Driving Africa's Growth?"

- The global resource boom and increased trade activity have led to the creation of a large middle class in Africa. In 2000, only 59 million African households earned more than US$5,000[9] per year. In 2012, the number was estimated to be 128 million.

Accordingly, investors had developed a strong interest in Africa. Foreign direct investment (FDI) in Africa had grown substantially, from $9 billion in 2000 to $62 billion by 2008, and was expected to reach $150 billion by 2015. A 2011 survey of private equity investors[10] showed that 57% of investors in private equity in Sub-Saharan Africa expected annual returns of at least 16%.

Africa also holds a special place in agriculture and food security. It has almost 60% of the world's uncultivated arable land. Surprisingly, while the 'green revolution'[11] has increased productivity elsewhere, its effect has lagged in Africa due to poor infrastructure. This implied that food productivity gains were still possible in Africa because efficient production techniques were not widely used.

Duxton had first invested in Africa in 2009. By 2012 it was a seasoned investor managing one of the largest fund-structured agribusiness portfolios with direct investments of US$30.1 million between the DRC, Tanzania and Zambia. Duxton had hands-on experience of managing assets on the continent and understood the upside potential of the right assets.

# The Kapunga Rice Project Limited (KRPL)

The Kapunga Rice Farm asset came to Duxton's attention through one of its team members who knew the owners of the asset. KRPL was one of only three large-scale rice farms in Tanzania. The site had originally been identified in the 1980s to create large commercial rice farms, which were built using funds from the African Development Fund and the Nigeria Trust Fund.[12] After completion, the asset had been handed over to the government but had quickly fallen into disrepair. The current owners had bought the asset from the government in 2006. At that time the asset was commercially non-viable, with little or no marketable production. They had turned around the asset, and now, with the farm at an inflexion point, were looking for help with the further expansion of operations (see Exhibit 17.4 on KRPL location and key features).

The current owner ('sponsor') was one of the largest soft commodities traders in Africa and the Middle East, with almost 40 years of reputable trading experience. They were one of the leading fertilizer, seed and cereal importers in Africa, and an integral partner of food aid supplies for the UN, World Food Programme and Red Cross. Their expertise was in developing agricultural production projects and in trading commodities, but not in operating farms. Notably, they had made a successful exit from an agricultural production project in Zambia, which was regarded by the

9. An income of US$5000 or more implies that this group is able to divert income to discretionary purchases after paying for food and shelter.
10. Emerging Markets Private Equity Association (EMPEA) - Coller 2011 survey.
11. A series of R&D and technology transfers around the world between the 1940s and 60s which helped increase agricultural output significantly.
12. Loans made to the Government of Tanzania.

World Bank as one of the more successful cases in which a production asset had been privatized, turned around by the investor, and sold on to a secondary investor with expertise in managing ongoing operations of a developed project.

Farm management was coordinated by the Verus farming group, headed by Justin Vermaak, a pioneer of precision farming in Africa and more recently of commercial bio-cropping and environmentally sustainable agriculture. Justin and his team were considered to be one of the best in Africa for such turnaround projects. Justin was a co-owner of the asset and would assume a lead role in the negotiations with Duxton.

## Duxton's Initial (Top Down) Assessment of KRPL

Duxton used both a top-down and a bottom-up analysis for all its investments including KRPL. The top-down approach was used to identify and pre-select attractive opportunities, and only if the top-down analysis looked promising would a rigorous bottom-up process follow.

As a first step, Duxton typically looked at demand patterns for the asset's produce, either strong international demand or (as in the case of KRPL) exceptionally strong local demand. The business case for supplying high-quality rice within Tanzania seemed convincing at first glance:

- Tanzania's real GDP had grown at an annualized 7% between 2003 and 20.[13] The resulting income growth had driven up domestic consumption of goods and services. Culturally, maize was the staple in Tanzania, but people aspired to consume rice as their income levels went up.
- As opposed to Asia, where greater concentration of protein in the diet was leading to slower growth in staple demand, Sub-Saharan Africa was at an earlier stage of the growth curve with staple demand increasing. Local demand for rice was expected to triple by 2020 due to rising urbanization, incomes and population.
- The government, in line with EAC (East African Countries) tariffs, imposed a 75% import tax on foreign rice. This was meant to manage currency reserves and encourage the production of domestic rice. Despite this, in Tanzania the domestic supply met only 90% of domestic demand in 2010, with the remaining 10% met through imported rice. In addition an overall deficit of more than 450,000MT per annum existed in the region.

Second, Duxton believed that when a region had produced a commodity for over 50 years, it was likely that:

- the location was suitable (subject to climate change)
- some infrastructure to support that industry was in place
- it was possible to tap into an existing local skill base

KRPL checked all three boxes. The Mbeya region was the third-largest producer of rice in Tanzania with 12% of total domestic rice production. Rice was the second most

13. OECD 2012.

important crop in the region after maize, with over 100,000 smallholders producing it. Mbeya rice was the most coveted variety in Tanzania. Mbeya had a certain level of existing infrastructure to support the area's rice ambitions. In fact, the government of Tanzania had identified Mbeya rice as a priority crop/region in its 'National Rice Development Strategy' which aimed to double rice production by 2018.[14] The local communities had the skill set needed for rice farming, and could provide labour and tenant farmers.

# KRPL Business Highlights and Plans

Duxton made a deeper assessment of KRPL before presenting it to their investment committee for approval to start a formal due diligence process.

Of KRPL's total land area of 7,980 ha, 4,400 ha was considered cultivable for rice. All of this area could be irrigated using feeder canals from the Ruaha River. The remaining land could be used for other crops such as soya, barley, bamboo, etc. At the time that the farm came to Duxton's attention, 3,500 ha were irrigated, of which 3,200 ha were cultivated (530 plots of 6 ha each). In the 2011/12 season, the average rice yield was 5.23 MT/ha, up from 2.5 MT/ha in 2009/10.

KRPL's produce was sold at the farm gate and in the local markets. The farm had also obtained an export license which allowed them to export up to 3,000 MT per year of rice to Zambia and DRC. Yet despite the premium paid (over the local price) in these markets, the farm was not using the export license at the time due to strong local demand.

The farm had a well-developed infrastructure, silo capacity, fully-fledged workshops, an administration building, a rice mill, and dryer & packing plant, all of which had been upgraded. It had a silo capacity for 10,000 MT and milling capacity for 21,000 MT per year. The processing features were attractive to Duxton – value-added activities improved agricultural returns significantly above pure production.

**Tenant Programme:**[15] Kapunga had a successful tenant programme under which 75-78 tenants leased 1,227 ha of rice paddy. Tenant leaseholders were provided with seed and fertilizer, while Kapunga would subsequently harvest and mill the crop. The tenant and Kapunga would agree on a rental fee (generally $150/ha). The first 3.4 MT/ha of rice harvested would go to Kapunga to cover costs. Leaseholders in this scheme typically came from a professional background and included the local district commissioner, local doctors and the regional surgeon. A key advantage of the programme was that it provided the project with significant downside protection through the political capital and good relations it forged, along with the rental returns. It also provided an annual hedge against the cost of production and operational risk. If the farm's own operations became too costly or ineffective, the entire farm could be leased out under the programme as large-scale commercial farms were not always viable in developing countries.

14. Gates Foundation, July 2012,"Developing the Rice Industry in Africa – Tanzania Assessment'.

15. The tenants were part of the long term strategy of the farm. When the farm yielded less than 6MT/Ha, it would make financial sense to lease land to the tenants as the profit margins were about the same. Upon exceeding 6MT/Ha of rice, it would become more profitable for the farm to produce instead of the leaseholders. At such point, management would move the tenants to the to-be-developed areas of the farm where they would develop the land in a cost effective manner.

# Management's Five-year Business Plan

To increase productivity and output, management planned to:

- Increase planted land to 4,400 ha from the current 3,200 ha.
- Increase average yields by process efficiencies and through the hiring of a rice expert. They hoped to achieve a yield of 6 MT/ha by 2014/15 and 8 MT in the long run.
- Use 720 ha of land to grow barley and legumes in the off season.

To implement this plan the farm would require:

- Land levelling – by using precision levelling, the farm would be able to maximize its available water resources through optimal irrigation and drainage.
- Investment in equipment, which would allow the farm to scale up its production further.
- Aerial seeding and spraying, which would increase efficiency of seed spraying while reducing the risk of loss from ground spraying, or of poor operational implementation.

The estimated cost to implement this plan was US$ 7.58 million, to be spent over the five-year period as shown below.

| **New Capex *(All figures in USD)*** | | **2011/12** | **2012/13** | **2013/14** | **2014/15** | **2015/16** |
|---|---|---|---|---|---|---|
| New Machinery | | | | | | |
| Heavy Tractor (Motor Vehicles) | | 275,000 | | | | |
| Medium Tractor (Motor Vehicles) | | | 200,000 | 200,000 | 200,000 | |
| Harvesting Unit (Plant & Machinery) | | 300,000 | 300,000 | 300,000 | | |
| Harvestor Support (Plant & Machinery) | | | | | | 275,000 |
| Pick-Ups (Motor Vehicles) | | 102,000 | | | | |
| Cropsprayer (Plant & Machinery) | | 185,000 | | | | |
| Implements (Plant & Machinery) | | 195,000 | | | 150,000 | |
| Grader (Plant & Machinery) | | 350,000 | | | | |
| Milling & Storage | | | | | | |
| Polisher (Plant & Machinery) | | 96,000 | | | | |
| Colour Sorter (Plant & Machinery) | | 120,000 | | | | |
| Silo Extension (Building) | | | 660,000 | | | |
| Dryer Upgrade (Plant & Machinery) | | | | 300,000 | | |
| Briquetting Machine (Plant & Machinery) | | | 120,000 | | | |
| Land Works | | | | | | |
| Cut and Fill (Basic Farm Area) | | 270,000 | 270,000 | 270,000 | 270,000 | 0 |
| Transformation (Expansion Area) | | 0 | 0 | 840,000 | 840,000 | 0 |
| Contingency | 500,000 | 133,536 | 109,340 | 134,735 | 102,991 | 19,399 |
| **TOTAL CAPEX (incl. contingency)** | | **2,026,536** | **1,659,340** | **2,044,735** | **1,562,991** | **294,399** |

## Key Risks for the Deal

- **Weaknesses in the Tanzanian rice sector:** The sector faced structural and operational constraints that potentially threatened its growth ambitions. There was a significant lack of knowledge of improved seeds, and little effort had been made to disseminate improved seed varieties to farmers. Kapunga mitigated this risk by encouraging research on its farm with the International Rice Research Institute and through the procurement of varieties from other regions.
- **Smallholder and community relations:** Kapunga had a successful tenant leasing model, but did not have one for the smallholders in the community. Historically, some tension between the farm and the local community had existed. Yet the tenants of the farm had excellent relations with the farm's management and provided strong credibility with the local community and smallholders. Duxton could build on this as they had run successful smallholder programmes in other projects and were planning to do so in Kapunga.
- **Procurement:** The procurement of input, machinery and spare parts was challenging in Africa. Parts that could not be found or replaced in time could lead to delays in planting or harvesting operations (e.g. spare parts for aerial seeding equipment or harvesters). Kapunga used several strategies to mitigate this risk. It had a standardised fleet and sourced only from manufacturers with proven supply lines into Eastern and Southern Africa. It also used a procurement expert who specialized in sourcing and importing in Sub-Saharan Africa. Management also kept a significant inventory of essential parts and supplies on the farm to deal with any contingencies.
- **Competition for labour:** Some of Kapunga's machinery and equipment required skilled operators who were difficult to find in Tanzania. A mining boom and increased investment activity had intensified competition for skilled labour. Kapunga was aware of this risk and farm management worked hard to incentivize trained staff by providing accommodation, competitive wages and benefits for families, including schooling and healthcare. Kapunga management planned to reduce over-reliance on skilled operators by increasing the scale of machinery and transferring operations from the ground to the air.
- **Availability and use of water:** Rice is very water-intensive but the farm's topography and its location in a flood plain made it best suited to rice production. Water management on the farm was critical, especially with the risk of drought every 4-5 years. Management felt that if used intelligently, water should not be an issue for the original 3,500 ha of land. Scaling the farm up to 4,400 ha of irrigated land, however, could make water management more of a challenge.
- **ESG issues:** Sensitive lands were not cleared for production. The land designated for extension by the company was already in use by the farm's tenants. Furthermore, in the original environmental impact assessment (EIA) performed for the farm, it was suggested that 450 ha within the farm be left as a conservation area for the birdlife and mammals (see Exhibit 17.5 on KRPL's SRI initiatives).
- **Sponsor and related party transactions:** Under the farm's off-take contract with the sponsor, the sponsor guaranteed to buy 100% of the off-take at a specified minimum price in return for a guarantee fee of about US$1-2 per tonne. The guarantee helped the farm raise low-cost input financing from banks by back-stopping a minimum guaranteed revenue level. The farm was not required to sell to the sponsor if market prices were better. In fact, the farm currently did not sell through the sponsor because there was a premium of US$80-90 per tonne at the farm gate. There was an agreement for any rice exports to go through the sponsor. A tender procedure was in place for the purchase of all inputs from the sponsor.

Any and all contractual arrangements between the sponsor and the farm were on an arm's-length basis and presented no transfer pricing risk or the risk that the farm was captive to the sponsor. To further mitigate risks, Duxton negotiated a board-level veto clause for any related party transactions.

- **Exit:** Although Kapunga was a desirable asset, the liquidity of the asset and the exit for the investor remained a risk. The sponsor had, however, demonstrated an ability to turn around and exit a similar farm in neighbouring Zambia by selling it to a regional business. The farm, once fully scaled, could be an attractive value-chain play for agribusinesses looking to scale and grow. The outlook for African agribusiness was positive, and increased investor demand was anticipated. A sale to another investor was not inconceivable. There was some scarcity value as well, because following the collapse of the commercial farming industry in Zimbabwe, farms in East Africa had become increasingly sought after.

# Proposed Deal Structure

Duxton had negotiated an entry price of US$19 million,[16] which was at a significant discount to indicative prices using comparables, DCF-based valuation, or to a previous independent valuation.

A total investment of US$12.84 million was envisioned, which would include:

- A subscription amount of up to US$7.58 million to support the management's five-year business plan
- A US$5.2 million investment for secondary shares in the property. It was structured such that the secondary shares could be bought after an initial investment of US$ 3 million.

These would give the investor a shareholding of up to a maximum of 48.3% of the holding company.

Duxton calculated a base case IRR of 26.8% using a seven-year holding period. Several upside and downside scenarios were evaluated. A single-factor upside and downside case are described below.

- Faster rice yield development (upside) – Kapunga's rice yields could exceed the base case assumptions if a rice agronomist could be hired to help get to full potential. Duxton calculated an IRR of 29.7% under this scenario (cf. 26.8% in their base case). The model was very sensitive to yields and the rate at which they would be achieved.
- Temporary removal of rice tariffs (downside) – There was the risk of the government temporarily removing import taxes. Duxton believed that such a measure was unlikely and would be short-lived if implemented. KRPL could protect itself by storing its milled rice until prices returned to normal or by exporting its produce to neighbouring countries. Duxton modelled a conservative 34% decrease in local rice prices for two years assuming the tariffs would be reinstated thereafter. The IRR under this scenario would shrink to 21.7% (cf. 26.8% in the base case).

16. For good practice, the team was requesting internal approval to invest up to $21 million.

# Final Assessment and Approval

After more than a year of research and due diligence, the Investment Committee (IC) approved the investment of US$12.84 million, of which 97% would be from the LP and the remaining 3% split between two Duxton mandates.

The sponsor, too, welcomed the decision. Justin Vermaak and the other partners were supportive throughout the due diligence process and professional during the negotiations, which concluded satisfactorily for all parties. With their IC approval, the investment team instructed the lawyers in Tanzania to draft the final legal documents and prepare the closing mechanisms in order to fund the investment.

# A Change in Circumstances

Des Sheehy sat back and pondered the call from the key investor, who was now withdrawing from the deal late in the process. The reasons were multiple, but none had to do with the asset itself. The investor had a new focus on developed market farmlands, and their ESG criteria had a renewed focus on exclusion factors which made farmland investments a challenge (managing such risks was key to the asset class).

As the team contemplated the prospect of their 97% funding partner backing out, different possibilities were considered. John suggested:

> *We have the option to try and find other investors who could take up some or all of this asset, but a process to identify and onboard a suitable partner would take time. Additional time would be needed for the new investors' internal investment processes. We should ideally lock in our due diligence and assessment of the farm or the due diligence will be seen as outdated in 6-12 months' time and we will lose momentum.*

On the other end of the spectrum Alex Lepori suggested:

> *There is the also the option to walk away from this investment and revisit it at a later point when the prospects look better. However, by doing so we would pass up on an opportunity we are excited about, and future conditions may not be quite as attractive. There could also be credibility issues with the sponsors the next time around.*

Des felt there could be a third option:

> *If we believe the opportunity is truly convincing, we can consider funding from funds that we have discretion over. Our funds will not be able to take up the entire US$12.84 million, but would be able to absorb some part of the investment. This option would give us an entry into the asset. We would certainly get a better understanding of the risks involved. It would also give potential investors comfort that we accepted the investment conditions and operational risk. However, by doing so we could run the risk that the amount invested does not make a material difference to the sponsor and the farm's operation.*

Duxton would be able to invest only $2 million immediately, which would buy them a secondary shareholding and less than 10% ownership. They were fairly confident that they could raise another $3 million from investors but needed a few months to arrange it. There were more questions on the team's mind:

- How would an investment of that size affect KRPL's growth and investment plans?
- What would it mean for Duxton's ability to manage and influence KRPL?
- How would this work with Duxton's broader investment and business strategy?
- What type of additional risks would a small investment entail compared to a more significant investment?

## A Meeting in Istanbul Airport

While Duxton was debating its strategy internally, KRPL's sponsors were waiting for an answer. They had confidence in Duxton's ability to help grow the farm's operations and had hoped for the parties to collaborate. This was obviously a big setback to the sponsor's plans. Justin Vermaak was frequently on the phone with Duxton, concerned about the next steps.

Des and John arranged a meeting with Justin. They would fly from Singapore to Istanbul on their way to the Gulf, Justin would fly from Tanzania to Istanbul, and they would get together in the airport lounge. It was the quickest way to arrange a face-to-face meeting.

As Des and John flew to Istanbul, the key question remained unanswered: What would they say to Justin?

**Exhibit 17.1**
*Bios*

**Duxton Asset Management – Principals**

**Ed Peter (CEO)** is the co-founder of Duxton Asset Management. Prior to joining Duxton, Ed was Head of Deutsche Asset Management for Asia-Pacific and the Middle-East and member of the Global Operating Committee for Deutsche Asset Management. Ed joined Deutsche Bank in 1999, having since served as Head of Asian & Australian Equities, Head of Global Emerging Markets Equities and as Head of Equities and branch manager for Deutsche Bank Switzerland, after 13 years of experience at UBS Warburg and Credit Suisse in Geneva.

**Desmond Sheehy (Managing Director and CIO)** is the co-founder of Duxton Asset Management. Prior to joining Duxton, Desmond worked for DeAM Asia from 2005–2009, where he was the Head of the Complex Asset Investments Team. In addition to providing fiduciary oversight and managing the day-to-day running of the funds, Desmond's roles included sourcing and evaluating new opportunities for investment, planning, structuring, financing and conducting due diligence. Previously, Desmond worked at the International Finance Corporation as a Senior Investment Officer both in Washington DC and Hong Kong where he was responsible for the origination, execution and supervision of investments throughout Asia. Before joining the International Finance Corporation, Desmond spent nine years as an engineer working throughout Europe and Asia on large infrastructure projects. Desmond holds an MBA from INSEAD (1998) and a BE (1988) from UCC in Ireland.

**Stephen Duerden (CFO/COO)** has 20 years of experience in the Investment Management industry. Prior to joining Duxton, Stephen spent over 15 years at DeAM, in various roles in which he was exposed to a broad range of financial products and services. Stephen is a member of Duxton's Investment Committee charged with evaluating investment/divestment opportunities and the fiduciary oversight of its mandates. Stephen's previous role at DeAM was COO of the Complex Asset Investments Team before which he was COO of DeAM Singapore. As COO of the Complex Asset Investment, Stephen provided operational oversight of all Complex Asset businesses and fiduciary oversight as Director of Complex Asset Cayman based funds. Stephen holds a B.Comm. (Accounting Finance and Systems with merit) from the UNSW and a Grad. Dip. in Applied Finance and Investments from FINSIA. Stephen is a Fellow of FINSIA and is a CPA.

**Kuan-Yew Chong (Director)** joined Duxton in May 2009. Kuan-Yew's career in finance spans over 16 years. Prior to joining Duxton, Kuan-Yew was in DeAM Asia's Complex Asset Investments Team, where he spearheaded DWS Vietnam's unlisted equities team. Kuan-Yew was responsible for deal origination, negotiation, structuring, due diligence and closing of numerous private-equity investments as well as monitoring of all investments for the DWS Vietnam Fund. Additionally, Kuan-Yew was also responsible for investments into agricultural farmland in Zambia and Tanzania for the DWS GALOF fund. Prior to Deutsche, he was an Associate Director of the Direct Investment team at AIG Investments in Malaysia where he was involved in equity investments in a broad array of sectors including natural resources and Agribusiness. Prior to that, he was an equity research analyst with NatWest Markets and Credit Lyonnais Securities Asia. He holds a BCom in Accounting and Quantitative Methods from the University of Melbourne, Australia.

**Duxton Asset Management – Kapunga Rice Project Deal Team**

**John Y Simpson (Vice-President/Head Africa)** joined Duxton in 2010 and works as part of the private equity investment team. His work includes the origination and evaluation of investments in African markets, projects which have important social and environmental aspects, often featuring smallholder cultivation schemes and challenging operational environments. John sits on the board of investments in Zambia, DRC and Tanzania. John also takes responsibility for co-coordinating Duxton's ESG/SRI strategy and processes. John has deep emerging markets experience in countries such as Tanzania, India, Serbia and Afghanistan having worked as an advisor for the United Nations Assistance Mission in Afghanistan ("UNAMA"), and consulting the Sheriff of Mumbai on economic development issues. John worked for the Institute for War and Peace Reporting in Serbia, where he introduced economic & business analyses into the organization's news output and wrote regular reports on the region's economic development. John holds a MSc in 'Population and Economic Development' from the London School of Economics and a BSc in 'Economics and Business' from University College London.

**Alex Lepori (Vice-President)** has 10 years of experience in principal and third-party funds investing in emerging markets across a number of sectors. Prior to joining Duxton, Alex was based out of London and worked for several of RREEF's real estate private equity funds with total assets under management of over USD 10 billion. During his time at RREEF, Alex participated in as well as closed a number of transactions involving either the acquisition of portfolios of established commercial real estate assets in Western Europe or the development of new retail and residential assets in joint ventures with local partners in Central and Eastern Europe. Before joining RREEF in 2005, Alex spent 5 years with the International Finance Corporation in Washington DC providing both greenfield and expansion project financing for a number of private-sector mobile telecommunications networks in developing countries. During his time at IFC, Alex worked on transactions in Zambia, Cameroon, Yemen, Colombia, Honduras, El Salvador, Dominican Republic and Romania and helped close on deals involving over USD 200 million of structured loan and equity financing. Alex holds a BSEng in Electrical Engineering and a BSEcon in Finance (First Class Honours) from the University of Pennsylvania as well as a MBA in Finance from the Wharton School.

**Kapunga Rice Project & Vendor's representative**

**Justin Vermaak (CEO Verus Farms & Co-Shareholder in Kapunga Rice Project Limited)** spent 11 years in the South African Special Forces with 1 Reconnaissance Regiment based in Durban. In this period he accrued a wide variety of skills including specialist demolitions, weapons expertise, signals, covert warfare and parachuting. He deployed on active service on a regular basis in Africa during the conflicts rooted in the fight between communism and capitalism, being awarded several medals for his service and bravery including the prestigious Honoris Crux. During this time he developed a deep understanding of Africa, its people and how to thrive in the African hinterland – preparing him well for his career in the African agricultural sector. On retirement from the army, he started a business with the aspirations of being a farmer.

Verus Farms was founded in 1990 with a few chickens, pigs and a small dairy. The first 6 months were disastrous due to a collapse in chicken prices and the vagaries of animal mortality – despite careful planning and budgets calculated to within 1% of actual costs a-la military style. It became clear very quickly to Justin that to succeed in farming the sales price and control of costs was as important as good husbandry and capital. By 1993 Justin had innovated a system where pigs and chickens were sold at a pre-set price and raised against a strict cost budget from inputs purchased through set price contracts with input suppliers – all calculated on a new device called a personal computer. This thinking led to a low cost farming model that had capacity to supply not only South Africa, but its regional neighbours. When the South African state controlled price boards ceased to operate in 1994, Verus was the only company in the market that was positioned to offer a truly stable supply chain product. Justin saw the opportunity and entered into bigger contracts to supply other companies with maize and soya on fixed contracts. Within 3 years the program had been so successful that it expanded nationally to all the major corporate agribusiness and the range of crops grew to include maize, soya, wheat and sunflower. Huge strides were taken by Justin's farmers to make production cheaper through the introduction of precision farming technology, allowing them to compete on a global platform.

The dynamic built and led Verus to setup an input division, collective bargaining for farmers further drive down costs and increase revenues from pooled marketing, with Verus becoming a founding member of SAFEX AMD. This allowed hedging of prices and risk management for famers. Verus traded 6% of the national crop and was the 5th biggest Agribusiness in South Africa. By 2003 Verus had rolled out similar programmes in Namibia, Botswana, Zambia, Brazil, Panama and Romania.

Justin's strong personal drive to expand into Africa has led him to invest in the Zambian cereal sector, rice in Tanzania as well as managing a large portfolio of development assets across the continent growing sugar, cereals and biofuel crops.

**Exhibit 17.2**
*World Food Security*

The price of any good, commodity or service is a combined outcome of the forces of demand and supply in its market. Increasing demand for food comes from a fast-growing world population which is also dynamically changing its consumption patterns with increasing incomes in emerging economies. While a billion people are still perennially hungry, and another billion remain undernourished, on average developing economies are moving from a low-protein to high-protein diet as their people earn more, and consumers in developed economies like the US and UK continue to waste one in every three calories that they buy.

By March 2012, the world population had exceeded 7 billion, representing 5% of all the people in the world that have ever lived. In the last decade alone, humanity has added an unprecedented billion new members, and it is expected that population will get to 9.2 billion by the year 2050.

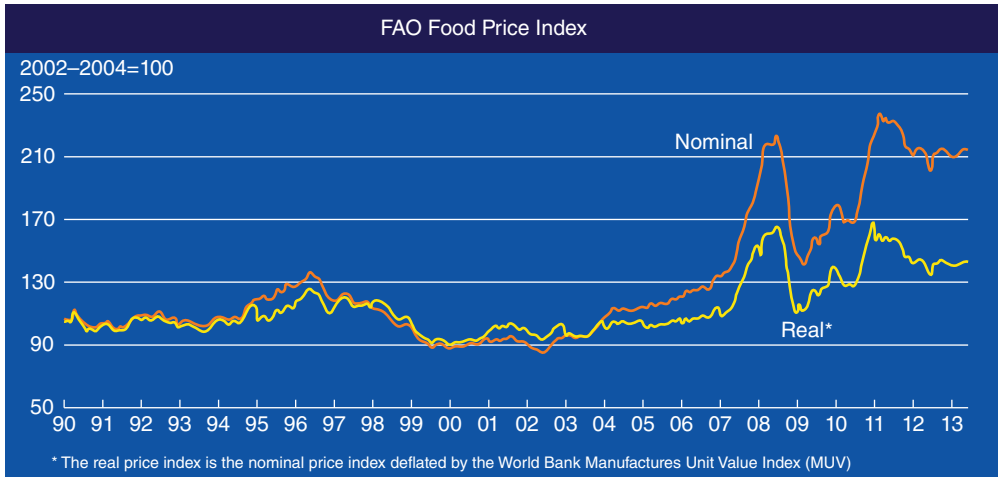
The fundamental concern with this scenario is that the supply of food will be stretched to keep up with such explosive growth in demand. The first and foremost constraint is the availability of additional arable land. For the first time in the history of man, our population is growing geometrically while the land available to support our calorific needs is growing arithmetically.

A second level of problem can be seen through the basic economic construct of marginal productivity of the new land. The most productive land has already been used and what is still available is less productive, more difficult to till, with less access to water resources, and ultimately only able to produce less per acre than the land currently in use.

In an additional twist, the dynamics in the oil and petrochemicals market have created a current and anticipated demand for biofuels, which means that in the future food crops must compete with biofuels for space and other resources.

Climate change adds yet another dimension to the food problem, by introducing new weather patterns, unprecedented increases in natural disasters, and a new level of variability in output. Finally, the supply of available water is drying up. The International Food Policy Research Institute (IFPRI) forecasts that 4.8 billion people (more than half the world's population) and about half of global grain production will be at risk due to water stress by 2050 if status quo, business-as-usual behaviour is followed.

Perhaps as a precursor to what the future could be, in 2008 total global food supply stood at 18% of the world's requirements, or just enough to feed the planet for 68 days. These fundamental global shifts lead us to consider the possibilities that expensive world food prices are here to stay, and that yields must increase if we are to maintain a sustainable world which supports our growth and still allows for biodiversity.

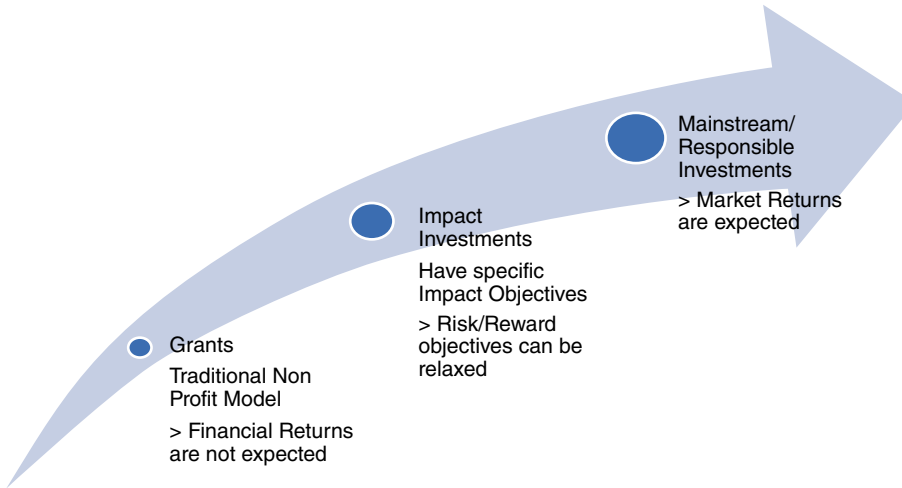



The FAO Food Price Index is a measure of the monthly change in international prices of a basket of food commodities. It consists of the average of five commodity group price indices (representing 55 quotations), weighted with the average export shares of each of the groups for 2002–2004.

**Exhibit 17.3**
*SRI and Impact Investments*

**Impact and Return Expectations**

- When we differentiate SRI/ESG/non-profit investments on the basis of returns expected, we see that the traditional model of giving has been via grants with no financial returns expected.
- Impact investments are designed to create financial and non-financial returns, although it is not uncommon for investors to relax their hurdle requirements in view of the social benefits of a project.
- Responsible investments combine traditional market investments with strong ESG components. These investments require and investors expect a market rate of return.



**SRI Impact and Level of Resources Required**

- Passive SRI policies can be handled with minimal effort, and these have a lower impact than active engagement with investees.
- Active investments, such as impact investments or responsible investments with operational guidance and support can create a large impact through the outcomes achieved.

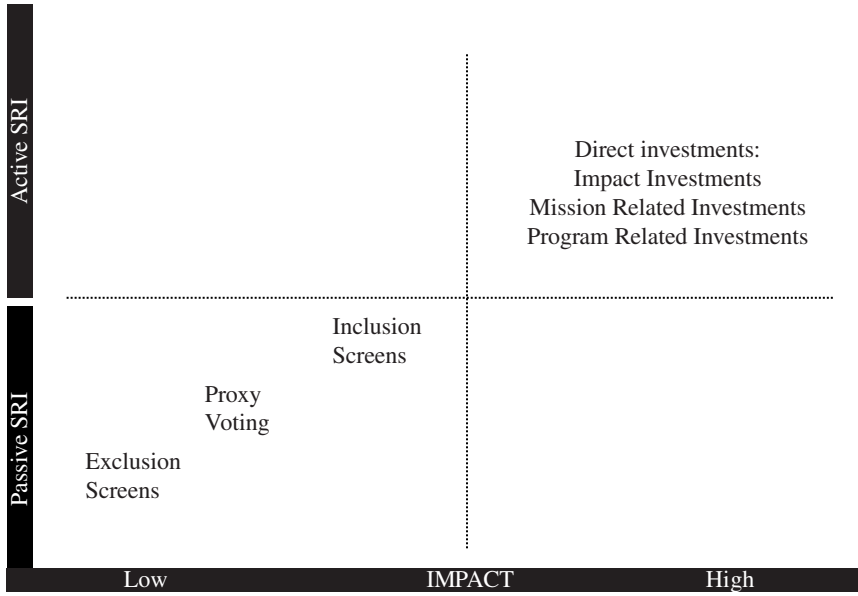
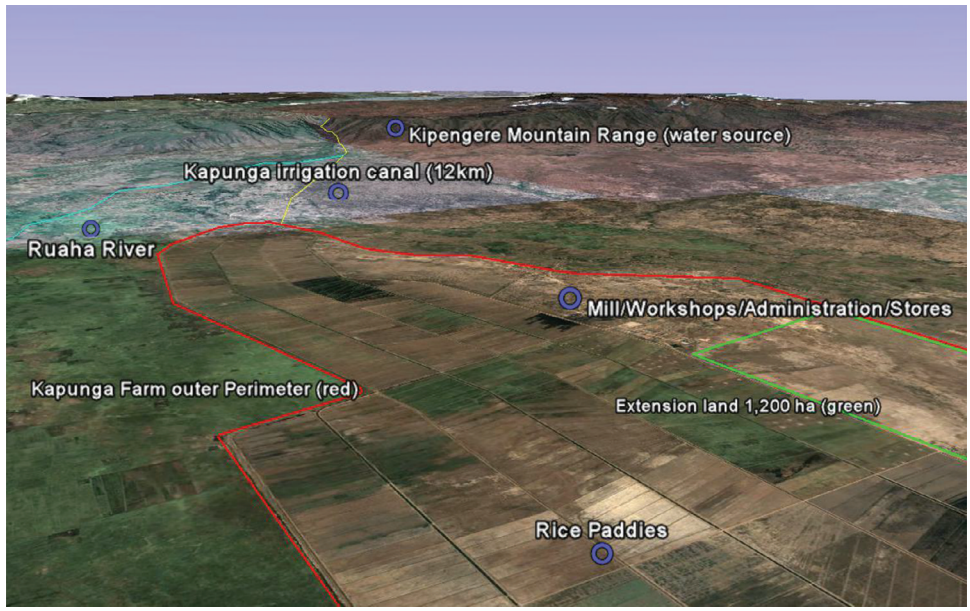


**Exhibit 17.4**

*Kapunga Rice Project Limited: Map and Highlights*




**Main Geographical Features**

- Kapunga's total area is 7,890 ha. Its current productive area is broken down into 530 paddies of 6 ha each, totalling about 3,200 ha, that is fed from a 12km feeder canal.
- Electricity and water is available in the workshops, mill and administration building. Electricity is provided by a dedicated transmission line from the national electricity grid which runs 12km alongside the feeder canal.
- The roads within the farm are negotiable through all seasons.
- A wireless communication network provides a cost-effective means of communication.
- The estate has extremely well developed infrastructure, a silo capacity of 10,000 MT, fully fledged workshops, an administration building, a rice mill, dryer and packing plant – all upgraded during the latest round of improvements.
- The estate further comprises of a housing section that can accommodate over 56 families. This is in addition to its community service centre, schools and clinic.

**Exhibit 17.5**
*KRPL SRI Credentials*

**A Summary of SRI Initiatives**

| External Development Initiatives[17] | Farm Level Initiatives | Local Community Outreach |
|---|---|---|
| EVD Private Sector Investment Programme | Provision of services to tenant farmers | Road grading |
| World Food Programme Supplier | Health and education | Canal maintenance for smallholders |
| Black Coucal research | Direct and indirect employment | |
| Sustainable agriculture expertise | Efficient water usage | |
| IRRI Seed programme | 450ha nature reserve | |
| | Environmental protection rules | |

**Collaboration with Dutch Ministry of Foreign Affairs:** In 2010, Kapunga was selected by the Dutch Ministry of Foreign Affairs to be involved in its Private Sector Investment Programme (PSI). As part of the programme, Kapunga is provided with a grant to train smallholder farmers in agricultural processes.

**World Food Programme supplier:** The sponsor, one of the main suppliers to the World Food Programme (WFP) in Sub-Saharan Africa, has invested in systems that allow fast delivery of bulk orders to WFP depots in case of an emergency. This makes the sponsor a preferred partner of the WFP.

**Sustainable agriculture expertise:** Justin Vermaak, a respected expert in environmentally-friendly farming techniques in Africa, runs a number of projects that spearhead biofuel crop research, including high-yielding Jatropha seeds for use on non-arable land. Furthermore, Verus Group has won a number of awards in South Africa for the design of sustainable farming systems and initiatives. The company is currently involved in the development and financing of commercial wind power generation modules for farms in South Africa. On farm, Verus have implemented strict environmental impact restrictions. No mineral oils are used, waste is minimised, recycling encouraged and burning banned. Management has also gazetted 450 ha of the farm as a wildlife preservation area to allow native bird species to breed.

**Cooperation with the IRRI research programme:** The International Rice Research Institute (IRRI) has a base and seed nursery at Kapunga where it stations some of its research scientists. IRRI uses the base to research local seed varieties and conducts tests on fertilisation, seed purification, yield enhancement and disease resistance.

**Black Coucal research programme – Max Planck Institute, Germany:** The bird life around the Kapunga farm is rich and diverse, with a plethora of scientifically important species. Each year since 2001, the Max Planck Institute for Ornithology (Germany) has been sending a team to Kapunga to study the Black Coucal cuckoo. The Max Planck team has been able to establish a full-time base at the farm, including a permanent laboratory and accommodation space.

**Farm level development initiatives:** Medical and school facilities on the farm provide health and education services for children of labourers and local management staff as well as for some of the children from the surrounding community.

17. In July 2012, the farm was visited by Richard Rogers, head of the Agricultural Programmes for the Gates Foundation. Kapunga has been chosen as the East African Gates Foundation site from which improved cultivation and growing techniques will be introduced to regional farmers.

**Exhibit 17.6**
*VALUATION & IRR*

## Base case

| Base Case: Assume upfront share purchase 25% up front, becoming 45% on exit, funding 100% of CAPEX | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Holding year** | **0** | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
| **Financial Year** | **2010/11** | **2011/12** | **2012/13** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** |
| ***Tulip Ownership*** | ***44.9%*** | ***44.9%*** | ***44.9%*** | ***44.9%*** | ***44.9%*** | ***44.9%*** | ***44.9%*** | ***44.9%*** |
| **Tulip Equity Flows** | | | | | | | | |
| Purchase of Shares | (5,250,000) | | | | | | | |
| New Shares | (7,588,000) | | | | | | | |
| Closing Costs | 0 | | | | | | | |
| FCFE (Dividends) | | 1,948,322 | 1,617,881 | 2,839,881 | 4,084,547 | 5,056,871 | 4,791,837 | 5,156,076 |
| Return of Capital (NAV) | | 0 | 0 | 0 | 0 | 0 | 0 | 19,232,441 |
| **Total Tulip Equity Flows** | **(12,838,000)** | **1,948,322** | **1,617,881** | **2,839,881** | **4,084,547** | **5,056,871** | **4,791,837** | **24,388,517** |
| **IRR = 26.80%** | | | | | | | | |
| **Exit Multiple = 3.48x** | | | | | | | | |

## Upside (Faster yield development)

| Base Case: Assume upfront share purchase 25% up front, becoming 45% on exit, funding 100% of CAPEX | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Holding year** | **0** | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
| **Financial Year** | **2010/11** | **2011/12** | **2012/13** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** |
| ***Tulip Ownership*** | ***44.9%*** | ***44.9%*** | ***44.9%*** | ***44.9%*** | ***44.9%*** | ***44.9%*** | ***44.9%*** | ***44.9%*** |
| **Tulip Equity Flows** | | | | | | | | |
| Purchase of Shares | (5,250,000) | | | | | | | |
| New Shares | (7,588,000) | | | | | | | |
| Closing Costs | 0 | | | | | | | |
| FCFE (Dividends) | | 2,362,192 | 2,260,934 | 3,568,634 | 4,979,771 | 4,699,721 | 4,900,691 | 5,159,464 |
| Return of Capital (NAV) | | 0 | 0 | 0 | 0 | 0 | 0 | 19,232,441 |
| **Total Tulip Equity Flows** | **(12,838,000)** | **2,362,192** | **2,260,934** | **3,568,634** | **4,979,771** | **4,699,721** | **4,900,691** | **24,391,905** |
| **IRR = 26.66%** | | | | | | | | |
| **Exit Multiple = 3.67x** | | | | | | | | |

## Downside (temporary removal of rice tariffs)

| Base Case: Assume upfront share purchase 25% up front, becoming 45% on exit, funding 100% of CAPEX | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Holding year** | **0** | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
| **Financial Year** | **2010/11** | **2011/12** | **2012/13** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** |
| ***Tulip Ownership*** | ***44.9%*** | ***44.9%*** | ***44.9%*** | ***44.9%*** | ***44.9%*** | ***44.9%*** | ***44.9%*** | ***44.9%*** |
| **Tulip Equity Flows** | | | | | | | | |
| Purchase of Shares | (5,250,000) | | | | | | | |
| New Shares | (7,588,000) | | | | | | | |
| Closing Costs | 0 | | | | | | | |
| FCFE (Dividends) | | 1,948,322 | 240,395 | 885,543 | 3,201,404 | 4,620,807 | 4,773,800 | 4,180,574 |
| Return of Capital (NAV) | | 0 | 0 | 0 | 0 | 0 | 0 | 19,217,658 |
| **Total Tulip Equity Flows** | **(12,838,000)** | **1,948,322** | **240,395** | **885,543** | **3,201,404** | **4,620,807** | **4,773,800** | **23,398,232** |
| **IRR = 21.69%** | | | | | | | | |
| **Exit Multiple = 3.04x** | | | | | | | | |

## Sensitivity Analysis

**ENTRY vs EXIT VALUATION**

ENTRY VALUATION

| EXIT VALUATION | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 44.9% | 45.3% | 45.7% | 46.1% | 46.5% | 46.9% | 47.4% | % Ownership |
| | | | 21,000,000 | 20,475,000 | 19,950,000 | 19,425,000 | 18,900,000 | 18,375,000 | 17,850,000 | Entry Valuation |
| | | | 0.0% | –2.5% | –5.0% | –7.5% | –10.0% | –12.5% | –15.0% | % Change in Entry Valuation |
| 3.3x | 36,403,215 | –15.00% | 25.6% | 26.1% | 26.6% | 27.2% | 27.7% | 28.3% | 28.8% | |
| 3.5x | 38,544,580 | –10.00% | 26.0% | 26.5% | 27.0% | 27.6% | 28.1% | 28.7% | 29.2% | |
| 3.7x | 40,685,946 | –5.00% | 26.4% | 26.9% | 27.4% | 27.9% | 28.5% | 29.0% | 29.6% | |
| 3.9x | 42,827,311 | 0.00% | 26.8% | 27.3% | 27.8% | 28.3% | 28.9% | 29.4% | 30.0% | |
| 4.1x | 44,968,677 | 5.00% | 27.2% | 27.7% | 28.2% | 28.7% | 29.2% | 29.8% | 30.4% | |
| 4.3x | 47,110,043 | 10.00% | 27.5% | 28.0% | 28.5% | 29.1% | 29.6% | 30.2% | 30.7% | |
| 4.5x | 49,251,408 | 15.00% | 27.9% | 28.4% | 28.9% | 29.4% | 30.0% | 30.5% | 31.1% | |

| Implied Exit P/E Ratio | Exit Valuation (USD) | % Change in Exit Value |
|---|---|---|
| *Method* | *1* | |

**ENTRY vs EXIT VALUATION**

ENTRY VALUATION

| EXIT VALUATION | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 44.9% | 45.3% | 45.7% | 46.1% | 46.5% | 46.9% | 47.4% | % Ownership |
| | | | 21,000,000 | 20,475,000 | 19,950,000 | 19,425,000 | 18,900,000 | 18,375,000 | 17,850,000 | Entry Valuation |
| | | | 0.0% | –2.5% | –5.0% | –7.5% | –10.0% | –12.5% | –15.0% | % Change in Entry Valuation |
| 4.4x | 47,783,677 | –15.00% | 27.7% | 28.2% | 28.7% | 29.2% | 29.7% | 30.3% | 30.8% | |
| 4.6x | 50,594,481 | –10.00% | 28.1% | 28.6% | 29.1% | 29.6% | 30.2% | 30.7% | 31.3% | |
| 4.9x | 53,405,286 | –5.00% | 28.6% | 29.1% | 29.6% | 30.1% | 30.6% | 31.2% | 31.8% | |
| 5.1x | 56,216,090 | 0.00% | 29.0% | 29.5% | 30.0% | 30.5% | 31.1% | 31.6% | 32.2% | |
| 5.4x | 59,026,895 | 5.00% | 29.5% | 30.0% | 30.5% | 31.0% | 31.5% | 32.1% | 32.6% | |
| 5.7x | 61,837,689 | 10.00% | 29.9% | 30.4% | 30.9% | 31.4% | 31.9% | 32.5% | 33.1% | |
| 5.9x | 64,648,504 | 15.00% | 30.3% | 30.8% | 31.3% | 31.8% | 32.4% | 32.9% | 33.5% | |

| Implied Exit P/E Ratio | Exit Valuation (USD) | % Change in Exit Value |
|---|---|---|
| *Method* | *2* | |

**ENTRY vs EXIT VALUATION**

ENTRY VALUATION

| EXIT VALUATION | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 44.9% | 45.3% | 45.7% | 46.1% | 46.5% | 46.9% | 47.4% | % Ownership |
| | | | 21,000,000 | 20,475,000 | 19,950,000 | 19,425,000 | 18,900,000 | 18,375,000 | 17,850,000 | Entry Valuation |
| | | | 0.0% | –2.5% | –5.0% | –7.5% | –10.0% | –12.5% | –15.0% | % Change in Entry Valuation |
| 8.5x | 92,854,502 | –15.00% | 34.0% | 34.5% | 35.0% | 35.5% | 36.1% | 36.6% | 37.2% | |
| 9.0x | 98,316,531 | –10.00% | 34.6% | 35.1% | 35.6% | 36.2% | 36.7% | 37.2% | 37.8% | |
| 9.5x | 103,778,561 | –5.00% | 35.3% | 35.8% | 36.3% | 36.8% | 37.3% | 37.9% | 38.4% | |
| 10.0x | 109,240,590 | 0.00% | 35.9% | 36.4% | 36.9% | 37.4% | 37.9% | 38.5% | 39.0% | |
| 10.5x | 114,702,620 | 5.00% | 36.5% | 36.9% | 37.5% | 38.0% | 38.5% | 39.1% | 39.6% | |
| 11.0x | 120,164,649 | 10.00% | 37.0% | 37.5% | 38.0% | 38.5% | 39.1% | 39.6% | 40.2% | |
| 11.5x | 125,626,679 | 15.00% | 37.6% | 38.1% | 38.6% | 39.1% | 39.6% | 40.2% | 40.7% | |

| Implied Exit P/E Ratio | Exit Valuation (USD) | % Change in Exit Value |
|---|---|---|
| *Method* | *3* | |

| OUTPUT PRICES vs YIELDS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | YIELDS | | | | | | | | |
| OUTPUT PRICES | **–10.0%** | **–7.5%** | **–5.0%** | **–2.5%** | **0.0%** | **2.5%** | **5.0%** | **7.5%** | **10.0%** |
| –10.0% | 21.5% | 22.1% | 22.7% | 23.3% | 23.9% | 24.4% | 25.0% | 25.6% | 26.1% |
| –7.5% | 22.2% | 22.8% | 23.4% | 24.0% | 24.6% | 25.2% | 25.8% | 26.4% | 26.9% |
| –5.0% | 22.9% | 23.5% | 24.1% | 24.7% | 25.3% | 25.9% | 26.5% | 27.1% | 27.7% |
| –2.5% | 23.6% | 24.2% | 24.8% | 25.5% | 26.1% | 26.7% | 27.3% | 27.9% | 28.5% |
| **0.0%** | 24.3% | 24.9% | 25.5% | 26.2% | 26.8% | 27.4% | 28.1% | 28.7% | 29.3% |
| 2.5% | 24.9% | 25.6% | 26.2% | 26.9% | 27.5% | 28.2% | 28.8% | 29.5% | 30.1% |
| 5.0% | 25.6% | 26.3% | 26.9% | 27.6% | 28.3% | 28.9% | 29.6% | 30.2% | 30.9% |
| 7.5% | 26.2% | 26.9% | 27.6% | 28.3% | 29.0% | 29.6% | 30.3% | 31.0% | 31.6% |
| 10.0% | 26.9% | 27.6% | 28.3% | 29.0% | 29.7% | 30.4% | 31.1% | 31.7% | 32.4% |

| OUTPUT PRICES vs DIRECT COSTS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | OUTPUT PRICES | | | | | | | | |
| DIRECT COSTS | **–10.0%** | **–7.5%** | **–5.0%** | **–2.5%** | **0.0%** | **2.5%** | **5.0%** | **7.5%** | **10.0%** |
| 10.0% | 22.4% | 23.2% | 23.9% | 24.7% | 25.4% | 26.1% | 26.9% | 27.6% | 28.3% |
| 7.5% | 22.8% | 23.5% | 24.3% | 25.0% | 25.8% | 26.5% | 27.2% | 27.9% | 28.7% |
| 5.0% | 23.1% | 23.9% | 24.6% | 25.4% | 26.1% | 26.8% | 27.6% | 28.3% | 29.0% |
| 2.5% | 23.5% | 24.3% | 25.0% | 25.7% | 26.5% | 27.2% | 27.9% | 28.6% | 29.3% |
| **0.0%** | 23.9% | 24.6% | 25.3% | 26.1% | 26.8% | 27.5% | 28.3% | 29.0% | 29.7% |
| –2.5% | 24.2% | 25.0% | 25.7% | 26.4% | 27.1% | 27.9% | 28.6% | 29.3% | 30.0% |
| –5.0% | 24.6% | 25.3% | 26.0% | 26.8% | 27.5% | 28.2% | 28.9% | 29.7% | 30.4% |
| –7.5% | 24.9% | 25.7% | 26.4% | 27.1% | 27.8% | 28.6% | 29.3% | 30.0% | 30.7% |
| –10.0% | 25.3% | 26.0% | 26.7% | 27.5% | 28.2% | 28.9% | 29.6% | 30.4% | 31.1% |

| CAPEX vs EXIT YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAPEX | | | | | | | | |
| EXIT YEAR | **15.0%** | **12.5%** | **10.0%** | **7.5%** | **0.0%** | **–2.5%** | **–5.0%** | **–7.5%** | **–10.0%** |
| **5** | 24.9% | 25.0% | 25.1% | 25.2% | 25.5% | 25.6% | 25.7% | 25.8% | 25.9% |
| 6 | 25.7% | 25.8% | 25.9% | 26.0% | 26.2% | 26.3% | 26.4% | 26.5% | 26.6% |
| 7 | 26.3% | 26.4% | 26.4% | 26.5% | 26.8% | 26.9% | 27.0% | 27.1% | 27.2% |
| 8 | 26.7% | 26.8% | 26.9% | 27.0% | 27.2% | 27.3% | 27.4% | 27.5% | 27.6% |
| 9 | 27.0% | 27.1% | 27.2% | 27.3% | 27.5% | 27.6% | 27.7% | 27.8% | 27.8% |
| 10 | 27.3% | 27.4% | 27.4% | 27.5% | 27.8% | 27.8% | 27.9% | 28.0% | 28.1% |

**Exhibit 17.7**

*KRPL Investment at a Glance*

| | |
|---|---|
| **Deal & Valuation:**<br>Pre-money Valuation: US$ 19m<br>Deal size: US$ 12.84m<br>– US$ 5.25m for 25% of sponsor's stake<br>– US$7.59m CAPEX/new shares<br>S'holding Pre-money: 100% Sponsor<br>Post-: 51.7% Sponsor 48.3% Duxton Investors | **Returns:**<br>IRR: 26.8% (7-year hold)<br>Cash Multiple: 3.5x<br>**IRR Sensitivities:**<br>Removal of rice tariff: 21.7%<br>Faster Yield development: 29.7% |
| **Farm:**<br>Total area: 7,890ha<br>Farmed now (irrigated): 3,200ha<br>Farmed post-expansion (irrigated): 4,400ha<br>Off-season Barley/Legumes: 720ha<br>Lease length: 99 years from 1995<br>Expiry: 82 years in 2094<br>Roads: over 70km (graded)<br>Irrigation canals: 27km primary, 80km secondary<br>Grid / generator power access, farm-wide Wi-Fi<br>Water Rights: 4.8cumecs – renewable every 4y | **Mill:**<br>Fully refurbished – Buhler (German)<br>Capacity: 25,000MT (35,000MT after CAPEX)<br>Current utilisation:15,000MT<br>175kwh power required – grid + generator<br>**Mill-out Ratios:**<br>Milled Rice: 64% → 67%<br>Bran: 4.8% → 4.5%<br>Husk: 30.8% → 28.5% |
| **Rice Market:**<br>Tanzania consumption: 1M MT/year<br>Tanzania production: 900,000MT/year<br>Tanzania imports: 100,000MT/year<br>World Price: US$ 500/MT<br>TZ Price: US$ 1,200/MT (75pc tariff)<br>DRC Price: US$ 1,600/MT<br>Average yield TZ: 1.5MT/ha | **Yields:**<br>Yield average (2012): 5.23MT/ha<br>Top 10pc yields: 7.6MT/ha<br>Lowest 10pc yields: 2.6MT/ha<br>Highest yield achieved: 8.16 MT/ha<br>**Rice varieties:**<br>Saro 5, Kapunga Star, Faye Dumi – mix of aromatic and non-aromatic |
| **Financing:**<br>Debt: No long-term debt<br>Short-term financing for Production and CMA: US$ 3m and 7m StanChart facilities<br>**Sales & Marketing:**<br>Bulk sold farm gate in 50kg bags<br>Premium paid as bulk availability<br>Customers incl. army/hospitals/traders<br>Potential to go into smaller retail bags<br>Brand – "Rice from Africa for Africa" | **Key-Ratios:**<br>**Margins:**<br>Gross: 55% → 67%<br>EBITDA: 30% → 58%<br>**Profitability:**<br>ROA: 2% → 10%<br>ROE: 2% → 15%<br>**Growth:**<br>Net Sales: 18%<br>Net Income: 42% |
| **Outgrower Programme:**<br>75 individual tenants (locals) on 1,227ha of land<br>Allows farm to scale-up quickly<br>Enhances local relations/political capital<br>Inputs and services financed by farm in return for guaranteed paddy for the mill & share of crop | **Management & Shareholders:**<br>Mgmt: Verus – SA & local – proven experience<br>S'holders:–large agri commodity trading company |
| **SRI/ESG features:**<br>Gates Foundation – outgrower excellence site<br>Netherlands MoFA – outgrower programme<br>World Food Programme – S'holders supply to<br>IRRI – variety research programme hosted farm<br>Black Coucal/reserve – 450ha. wildlife reserve<br>Road Grading – provided for free to community<br>School & Medical for employees and outgrowers | **Due diligence completed:**<br>Financial ✓<br>Legal ✓<br>Agronomic ✓<br>Outgrower Programme ✓<br>Water/Irrigation ✓<br>Tax/Structuring advice ✓<br>Background checks on Sponsors ✓<br>Farm security procedures ✓<br>Chemical/fertiliser safety ✓ |